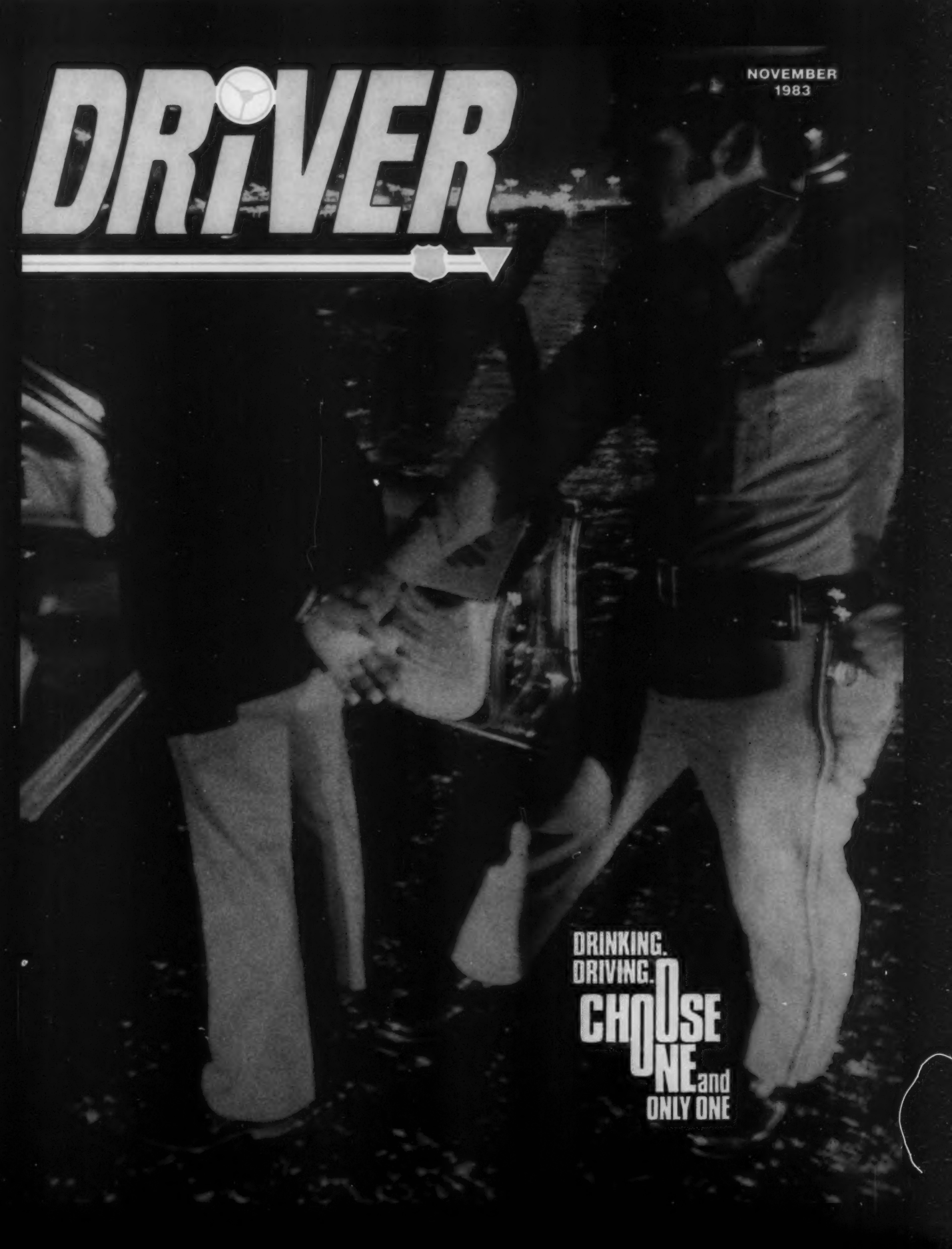
DRIVER

NOVEMBER
1983



DRIVER

INTRODUCTION

This month we're taking a close look at the drunk driver. The drunk driver might be someone you meet on the road and have to avoid. It might be someone you know and care about personally, a friend or relative. It might even be you.

We hope to give you some facts that will start you thinking about the problem. Some facts that will surprise you or even shock you. And some information that will assist you in fighting the problem.

The best thing you can do is to be aware of the drunk driver problem and do whatever you can to combat it. The worst thing you can do is to ignore it.

DRINKING. DRIVING. CHOOSE ONE and ONLY ONE

(left)
Problem drinkers, those who drink to excess very often, make up two-thirds of the people who are arrested for driving while intoxicated.

(near left)
Drinking is involved in at least 50 percent of all accidents in the United States each year. The percentage may be much higher.

THE PROBLEM AND ITS CAUSE

The majority of drivers involved in serious crashes and drivers arrested for drunk driving are "problem drinkers." That is, those people who drink a lot both in frequency and in quantity, and who then get in their cars and attempt to drive.

In a typical jurisdiction, about two-thirds of the people who are arrested for driving while intoxicated are identifiable as problem drinkers, either clearly or marginally. When arrested, these individuals usually have a high Blood Alcohol Content or Level (BAC or BAL), .15 or more. (See table on page 7.)

Drivers with a high BAC, say .10 or higher, are likely to be involved in at least:

- Twice as many crashes
- Twice as many property damage crashes
- Twelve times as many fatal crashes
- Twice as many traffic violations
- Three times as many license suspensions as the average driver.

The "social drinker" rarely reaches the BAC that the problem drinker often reaches. Problem drinkers drive under the influence so often that they learn to partially compensate for their impairment. Social drinkers don't get that much practice. They are likely to judge themselves "too drunk to drive," or to drive very badly at lower BACs.

Studies show over and over again that alcohol is involved in at least half of the fatal accidents in this country. The Department of Transportation quoted studies that tested the BAC of fatally injured drivers, with the following results: No alcohol — 45%. BAC less than .10 — 8%. BAC greater than .10 — 47%.

Of the alcohol-related crashes, 80% involved high BAC levels. Only 17% of the drinking drivers have BACs under .10, and 83% of the drinking drivers have BACs of more than .10. In fact, the average BAC of drinking drivers killed in auto accidents is *more than .20.*

And yet, despite the low number of individuals who drive drunk, and the high level of their intoxication, drunk driving is *the* traffic safety problem.

Every year in the United States, over 50,000 people die in automobile crashes. In half of these deaths — some estimates say as many as 60 percent — a drunk driver is involved. In three-quarters of the crashes with alcohol involvement, the drinking driver is the one at fault.

No other traffic safety problem is as urgent as handling the drunk driver.

A SHORT COURSE ON ALCOHOL

ALCOHOL is a general depressant of the central nervous system. It affects everything from higher cognitive functions like thinking to basic life functions like breathing, depending on the amount consumed.

One of the first things to be affected is judgment, which explains why people misjudge how they are handling what they drink. Increased alcohol will impair balance and muscle control. Extremely high levels of alcohol in the bloodstream can cause death from respiratory paralysis. Most people get sick and pass out long before they reach that level.

Several factors will affect the speed with which alcohol intoxicates an individual.

Weight is an important one — the more a person weighs, the more it takes to get him or her drunk. Another factor is food — if there is food in the drinker's stomach, the alcohol will not reach the bloodstream so quickly. And, of course, there is the drinking rate — the faster the drinker follows one drink with another, the faster he or she will get drunk. Our BAL Table (for Blood Alcohol Level) on page 7 gives a rough idea of these factors.

There are other factors that will also affect the rate and level of intoxication — kind of mixer, mood of the drinker,

continued

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DRIVER

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CONTENTS

The Backyard Mechanic 24
Cover Story 1
Double Clutch 3
What's MOST II and Why 10
Wouldn't It Be Nice 12
Timely Topics 16
State Moped Laws 18
Fascination 20
Double Tech 22
May The Force Be With You 23
Backfire 28

Take A Crack At It 14

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DOUBLE CLUTCH

PAYING FOR ROAD SPACE

Can you imagine living in a city where there are 470 vehicles for every mile of roadway? Where land is so valuable that existing roads cannot be widened and new roads are built on stilts over the sea? That's how things are in Hong Kong, and the government is getting desperate about the traffic problems. It has already imposed heavy taxes on car ownership — the registration fee is 70% to 90% of the retail value the first year and $400 to $800 a year thereafter. Fuel taxes have been increased annually. Still the number of vehicles grows.

The British colony has come up with a high-tech solution to discourage people from driving their cars in the city at peak times by charging them for doing so. All 350,000 of Hong Kong's motor vehicles must be fitted with a book-size device that will pick up low-frequency radio signals from wire loops set about four inches deep in the road and transmit the car's identification numbers. These numbers will be relayed, along with the location, the time, the road-use toll, and other data to computers which will then bill car owners for road use. The monthly bill will be a lot like a telephone bill, showing where the car was, the exact time and the toll. When demand for road space is high, as in rush hours, fees will be high. When demand is lower and there is no congestion, fees will drop. The Hong Kong transport department expects 500 miles of driving a month will cost about $40.

Vehicle transponders and road sensors will be tested in a two-year program. Meanwhile, Hong Kong drivers are wondering about a system that can instantly spot and report the exact location of their cars and keep a record of their every move. Those who value privacy may indeed start taking the bus.

drinking. driving. choose one. (and only one.)

continued

experience of the drinker with alcohol, presence of other drugs in the bloodstream, altitude — the list can include many things.

However, the rate the alcohol gets out of the system is limited to the ability of the liver to detoxify it. The liver can handle only around a third of an ounce of pure alcohol per hour. Therefore, it is fairly easy to get drunk. And therefore, it takes a long time to sober up.

THE "WHYS" OF TEENAGE DUI

by JAMES J. ONDER, PH.D.
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SOCIAL DYNAMICS OF TEENAGERS AS A CONTRIBUTING CAUSE OF DRUNK DRIVING CRASHES

RECENT ATTENTION devoted to the social costs of drunk driving by the National Highway Traffic Safety Administration and a growing network of public and private organizations has revealed a startling truth — that American teenagers constitute a major factor in drunk driving statistics. The Surgeon General has reported that life expectancy improved in the United States over the past 75 years for every age group but one. That exception is the 15-24 year old American whose death rate is higher today than it was 20 years ago. And the single leading cause of death for this age group is drunk driving.

Research conducted by the National Institute on Alcohol Abuse and Alcoholism, a Federal agency, reveals that some 3.3 million American teenagers (between ages 14 and 17) have a serious alcohol problem — that is 19.3% of the age group. A great many more are consistently heavy social drinkers, while others drink heavily on occasion, which could lead to drunken driving behavior at the wheel.

In addition to alcohol, there is a cluster of environmental influences which predispose teenagers toward irresponsible driving and drinking behavior. A survey was taken of activist groups, government officials, and alcohol treatment personnel around the country. There is consensus among these experts that an array of social dynamics and behavior patterns affect where and how young adults drink and subsequently drive. These are contributing causes which parents of teenagers should consider.

The relationship between the teenage driver and vehicle is unique. As inexperienced drivers, teenagers are often unprepared to handle hazardous road and weather conditions. Driving has not yet become a part of their subconscious reactive system, so their chances of having an accident are already higher than average. Those young adults are already overrepresented in the Department of Transportation's problem driver classification. So even before alcohol complicates the problem, their chance of having an accident is already higher.

These young adults also tend to drive high risk vehicles whose power may allow them quickly to exceed the capacity of braking and suspension systems, often

continued

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carrying non-standard equipment for which the vehicle was not designed. Some drive cars with "maximum performance" even though they have "minimum driving experience."

Obtaining a driver's license at 16 places some teenagers, boys especially, behind the wheel before they are physiologically or emotionally equipped to handle the consequences. Add to this the automotive rites of passage to adulthood, and conditions are ripe for danger. Many teenagers tend to feel immortal, or at least invincible to the hazards of high speed driving. They do not wear safety belts (only 13% of all drivers do, according to national surveys), and it is the custom in many circles for teenage drivers to rotate behind the wheel several times during an evening. The probability of misjudgment is increased by this practice as well as the possibility of finding an incompetent driver at the wheel.

Teenagers drive many more miles to social events each year than do most adults. The chances of an accident are therefore already disproportionately higher. Driving to a place where alcohol is being served is one of the major forms of teenage entertainment. Moreover, such driving commonly occurs at night when vision is limited, when drowsiness is more likely, and slowed reactions from alcohol more pronounced. Alcohol involvement in fatal teenage accidents is at least three times greater in nighttime accidents (between 8 p.m. and 4 a.m.) than it is in day time accidents (between 4 a.m. and 8 p.m.). These are the times of highest risk in terms of fatality rates. Other drinking drivers are also on the road during these hours, so that the probability of causing an accident or being the victim of a drunk driver is high.

Automobiles are directly related to privacy in the teenage world. Teenagers can drink in the car without supervision or adult interference. Incidentally, they may also be tempted to kill the bottle in the car rather than bring home partially filled containers which may meet with parental disapproval. Such privacy can lead teenagers to experiment with alcohol at a younger age. Youngsters may actually learn to drink at the same time they are learning to drive. They could

Teenagers often drink *in* the car.

therefore see drinking and driving as interrelated activities and socially compatible.

Peer pressure is especially acute in adolescent society. There is some evidence, for example, that the presence of several teenage passengers in the car may be associated with increased crash risk among young adult drivers. Teenagers do not like to appear to lose control in social situations, so they may be led to overestimate their capacity to drive after drinking. This often leads to reckless or risky driving.

Teenagers are apt to use driving as a means of expressing anger or aggressive urges. They may seek drinking and high speed driving as a means of demonstrating masculinity and prowess. Here, men under this conditions seem to be more aggressive drivers than young women.

For a variety of reasons, young drinkers are particularly vulnerable to the effects of alcohol. Teenagers generally have less body fat, so a given amount of alcohol will affect their perceptions more readily. Since drinking is a new experience, they often do not know how to pace themselves, and their tolerance for liquor is low. They tend to underestimate the amount of liquor they have had whether consciously or unconsciously, they do not measure or monitor the number of drinks and do not set limits on their consumption. As a result, they may not consider themselves to be drunk until far beyond the legal limits of intoxication. They are prone not to realize that mental faculties are impaired long before loss of physical control.

In this regard, studies have shown that many young adults do not view beer to be as intoxicating as hard liquor. Yet there is the same amount of alcohol in one beer (12 oz., 4%) as a shot of hard liquor (1 oz., 100 proof). What's more, young adults have a tendency to drink for recreational purposes rather than for relaxation to relieve tension. Their objective is to get high and release inhibitions, while older adults tend to use alcohol as a depressant to ease stress. Teenagers drink to prepare for activity; older adults drink to prepare for repose.

Finally, adults drink as a prelude or accompaniment to eating, by and large, but teenagers do not necessarily eat along with their drinking. The alcohol content of their stomachs is often not buffered by food. Many of them have poor eating habits, anyway, and this is accentuated by party behavior in which food plays a decidedly secondary role.

What can parents do to help teenagers perceive underlying stresses and realities that predispose them toward destructive behavior? The menace of high risk situations and the pressure of socio-environmental factors should be discussed with teenagers so that the probabilities and potential are clearly understood. Even if some young adults feel that they will never drink and drive, they should know that innocent passengers are killed in auto crashes as often as drinking drivers. It is imperative that the young adult understand the necessity for making a decision. Exercising judgment, and simply knowing that a decision must be made, however, may be a trigger mechanism in the teenage mind to resist social pressures. Knowing when to stay out of a car with a drinking driver may be the key to survival.

"WHISKEY, WITH A COFFEE CHASER"

OF ALL THE SUPPOSED "remedies" for drunkenness, the most popular is certainly drinking coffee. People speak about pouring coffee down an intoxicated friend to "sober him up." But only time will make a drunk sober again. No other method, including coffee, will have much effect. However, new scientific research gives an even more negative picture.

It is well known that alcohol is a depressant and that the caffeine in coffee is a stimulant. The misconception is that the caffeine will counteract the alcohol. Some laboratory studies of the effect of these two substances taken together show a little improvement in performance after the caffeine.

However, more recent work with the two drugs has shown that not only does caffeine not improve an intoxicated person's performance, it actually makes it worse.

Dr. David Oborne of the University College of Swansea in Wales, writing in the June 1983 edition of *Aviation, Space, and Environmental Medicine*, reports on a "synergistic" effect of the two drugs taken together. That is, the caffeine adds to the impairment caused by alcohol.

Oborne gave his test subjects alcohol in orange juice to raise their Blood Alcohol Content to about .8, the legal driving limit in the United Kingdom. Then he gave them a cup or two of coffee and gave them a series of tests for memory and reaction time. Instead of helping the test subjects' performance, the coffee only made it worse.

Oborne concludes, "As was found in this experiment and in previous studies, caffeine has no effect on the blood alcohol concentration. Thus the assumption that drinking coffee should make the driver feel more alert and reduce the chances of a positive breath-alcohol test has no physiological evidence to support it. Moreover, the driver may remain unaware of a continuing impairment of cognitive processing which may be potentiated (increased) by caffeine. This, coupled with the possibility of continuing reduced motor coordination (all-important to the search, recognition of an accident) may mean that the driver is likely to be even more prone to incurring hazards after consuming coffee than if none had been drunk at all."

So much for "whiskey with a coffee chaser." The other so-called "cures" for drunkenness — cold showers, oxygen, and the rest — also do not work. The only sure-fire cure for a few too many is *time*.

Despite popular ideas, coffee does not counteract the effects of alcohol. It might make performance worse.

FRIENDS DON'T LET FRIENDS DRIVE DRUNK

AS WE MENTIONED earlier in this section, the majority of the drunk driver problems in this country is caused by what is called the "problem drinker." In reality, any drinker becomes a "problem" when he slips the key in the ignition, whether he does it every night, or just one time in his life.

The question is "How to handle that problem?" We talk elsewhere in this sec-

continued

There are three things you can do for a friend who's had too much to drink. You can drive him home yourself.

You can let him sleep over and drive himself home the next day when he's sober.

tion about not being part of the problem yourself. But what about others?

First, there are friends who drink too much. Whether they are social drinkers or problem drinkers, friends are people we can have an effect on. And the desired effect is to stop them from driving.

If you're with a friend who has too many drinks, you want to protect him (and others) from the effects of his impaired driving. You can drive him home to make sure he gets there safely. This, of course, is only a good idea if you're sober yourself.

Another possibility is to find him a pillow and a blanket and let him sleep over. By the next morning he will be sober enough to drive himself.

If you can't drive either, and your friend wants to go home, call a cab.

But whatever you do, don't let a friend drive drunk.

Drunk drivers you encounter as you are on the road are another story. You have no control over them at all. You can only keep out of their way. (Another item in this section lists ways to recognize drunk drivers.) If you suspect a driver is drunk, report it to the police. They are the only ones who are trained to deal with the problem.

Your action of reporting the drunk driver will combat the DUI problem — and it could save somebody's life.

Or you can call a taxi to transport him home. But you can't let him drive himself, not if you expect to see him again.

THE ODDS ARE . . . .

Being stopped for drunk driving is more a sure thing than you might expect

WHAT ARE YOUR CHANCES of being arrested for driving while intoxicated? The figures quoted most often to estimate that risk are between one in 500 and one in 2000. However, at least one law enforcement agency, the California Highway Patrol, disputes this idea.

To obtain what they call "a more realistic figure," the CHP suggested using some national statistics on drunk driving, along with some local numbers to compute odds. These are the statistics, from the National Highway Traffic Safety Administration and the Federal Highway Administration.

What are the odds that you'll be arrested for driving while intoxicated?

continued

■ **About 25%** of drivers are on the road between 8 p.m. and 4 a.m.

■ **About 5%** of those drivers have a Blood Alcohol Content (BAC) of at least .10.

■ **About 95%** of Driving under the Influence (DUI) arrests are made between 8 p.m. and 4 p.m.

■ **ABout 85%** of DUI arrests occur on Tuesday through Saturday nights.

■ **About 80%** of DUI arrests occur between 8 p.m. and 4 a.m. Tuesday through Saturday.

Next you need to know the number of licensed drivers and the number of DUI arrests in your community. An example of an arrest level that is often quoted as a goal for a DUI program is 2% of the licensed population. If we use an example of a community with 50,000 licensed drivers, we would then expect 1000 DUI arrests.

Using this information, and replacing the local figures in your area for our examples, you can obtain a rough idea of the chances of a DUI arrest.

1. Determine the number of licensed drivers in your area, driving between 8 p.m. and 4 a.m.

Licensed drivers x .25 = Drivers at night, average 1 day.

Example: 50,000 x .25 = 12,500

2. Determine the number driving at night on 5 nights of 52 weeks.

(1. above) x 5 x 52 = Number on road in a year

Example: 12,500 x 5 x 52 = 3,250,000 drivers

3. Determine the number of drivers on the road above .10 BAC.

(2. above) x .05 = number of drivers legally drunk

Example: 3,250,000 x .05 = 162,500 drunks.

4. Determine the number of DUI arrests occuring between 8 p.m. and 4 a.m. Tuesday through Saturday.

Number of arrests x .80 = DUI arrests between 8 p.m. and 4 a.m. Tues.-Sat.

Example: 1,000 x .80 = 800 arrests

5. Determine the chance of a DUI being arrested on a given night.

continued

Number of Drunk Driving Nights Per Year	Probability of Arrest	Chance of Arrest
1	.005	1 in 203
2	.01	1 in 100
4	.02	1 in 50
8	.04	1 in 25
12	.06	1 in 17
16	.08	1 in 12.5
24 (twice a month)	.11	1 in 9.1
52 (once a week)	.23	1 in 4.3
104 (twice a week)	.42	1 in 2.3
158 (3 times a week)	.54	1 in 1.9

The point of all this data is that in a community with a tough anti-drunk driving program, the chances of a drunk driver being arrested are significantly higher than you might think. A person who repeatedly drives under the influence of alcohol will have a hard time *not* getting caught by DUI patrols.

BAL TABLE

	1 Drink				2 Drinks				3 Drinks				4 Drinks			
After hours	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1
Weight pounds																
80	—	—	—	.02	—	—	.05	.08	.07	.10	.10	.10	.12	.12	.15	.15
100	—	—	—	.02	—	—	.04	.06	.05	.07	.08	.09	.09	.10	.12	.13
120	—	—	—	.02	—	—	.03	.04	.03	.04	.06	.08	.06	.08	.09	.11
140	—	—	—	.01	—	—	.02	.04	.02	.03	.05	.06	.04	.06	.08	.09
160	—	—	—	.01	—	—	.02	.03	.01	.02	.04	.05	.03	.04	.06	.08
180	—	—	—	.01	—	—	.01	.03	—	.02	.03	.04	.02	.04	.05	.07
200	—	—	—	—	—	—	.01	.02	—	.01	.03	.04	.01	.03	.04	.06

	5 Drinks				6 Drinks				7 Drinks				8 Drinks			
After hours	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1
Weight pounds																
80	.17	.17	.19	.20	.19	.22	.22	.25	.25	.27	.27	.30	.29	.30	.32	.33
100	.13	.14	.16	.17	.16	.18	.19	.21	.20	.22	.23	.25	.24	.25	.27	.28
120	.09	.11	.13	.14	.13	.14	.16	.17	.15	.17	.19	.20	.19	.20	.22	.23
140	.07	.09	.10	.12	.10	.12	.13	.15	.13	.14	.16	.17	.15	.17	.18	.20
160	.06	.07	.09	.10	.08	.09	.11	.13	.10	.12	.13	.15	.13	.14	.16	.17
180	.04	.06	.07	.09	.06	.08	.09	.11	.09	.10	.12	.13	.11	.12	.14	.15
200	.03	.04	.06	.08	.05	.07	.08	.09	.07	.09	.10	.12	.09	.10	.12	.13

Numbers equal the percentage of alcohol in the blood. Dash (—) = a trace of alcohol.

Use this table as a guide to tell you how much you can drink. The table supposes that you've eaten, and are drinking an "average" drink. BALs for people with empty stomachs, and for those drinking more potent drinks (martinis, manhattans, "doubles," and the like) will be higher.

continued

(3. above) divided by number of DUI arrests (4. above) = chance of arrest

Example: 162,500 divided by 800 = 1 in 203

Using these figures, you can see that the chance of an arrest for one night of driving under the influence is very low; the probability is .005. However, the chance of arrest increases significantly as you increase the number of nights that you drive drunk. This chart shows those increasing chances.

THE OTHER MIXERS

UNFORTUNATELY, other things besides soda and tonic water sometimes get mixed with alcohol, with dangerous or even lethal results.

We're talking about the over-the-counter cold remedies that people use so often this time of year. These medications are not usually designed to be taken with anything else, especially alcohol. Worse, the caution against alcohol is often printed on the packages of these substances.

Cold medications sometimes cause drowsiness, and the addition of alcohol (a depressant) will, at the very least, increase this effect. Just because these medications are sold without a prescription, don't assume they are safe in all applications. Read the instructions for their use and follow them. And leave the booze on the shelf.

Alcohol will increase the effect of many drugs, prescription and over-the-counter.

Erratic driving is one clue to a drunk or impaired driver.

HOW TO SPOT A DRUNK (OR IMPAIRED) DRIVER

THE CB RADIO COALITION Against Drunk Driving has issued a list of tips for spotting drivers who may be drunk or need help.

- **Exaggerated,** erratic driving patterns signal a possible impaired driver.
- **Ignoring,** overshooting or hanging back at stop signs or traffic lights.
- **Unusually fast or slow** driving, possibly alternated fast/slow.
- **Driving too close** to edge of road or straddling center line.
- **Frequent and sudden** lane changing or passing without sufficient clearance or signal.
- **Difficulty in turns,** swinging too wide or off course, possibly with wrong signals.
- **Driving at night** without lights, failing to dim lights to oncoming traffic, or driving with interior dome light on and headlights off.

Since you cannot safely drink and drive, you have to choose one or the other. If your friend drinks too much, you may have to choose for him.

■ **Driving** with windows down in cold weather or driving with head part way out of window.

If you have a CB radio, you can give an impaired driver alert on emergency channel 9. Give the exact location by identifying the road the impaired driver is on and the direction of travel. Give a description of the vehicle such as model, color and license plate number. Stand by to answer questions or to repeat information.

Remember that an impaired driver may not be drunk, but may be ill or disabled. Whatever the reason for the impairment, you can help that driver and others on the road by reporting the situation.

CHOOSE ONE

IF YOU READ the facts about alcohol, they will convince you that you need to choose either drinking or driving, and not combine the two activities.

Remembering that alcohol impairs your judgment, you should exercise mature judgment before you take the first sip. Set a limit to the amount you will drink beforehand, and stick to it. (This is not an easy thing to do.) Make the limit a conservative one.

Eat food before you start drinking, and eat along with whatever you drink (and not salty items which will make you more thirsty). Remember that foods slows down the absorption rate of alcohol into the body.

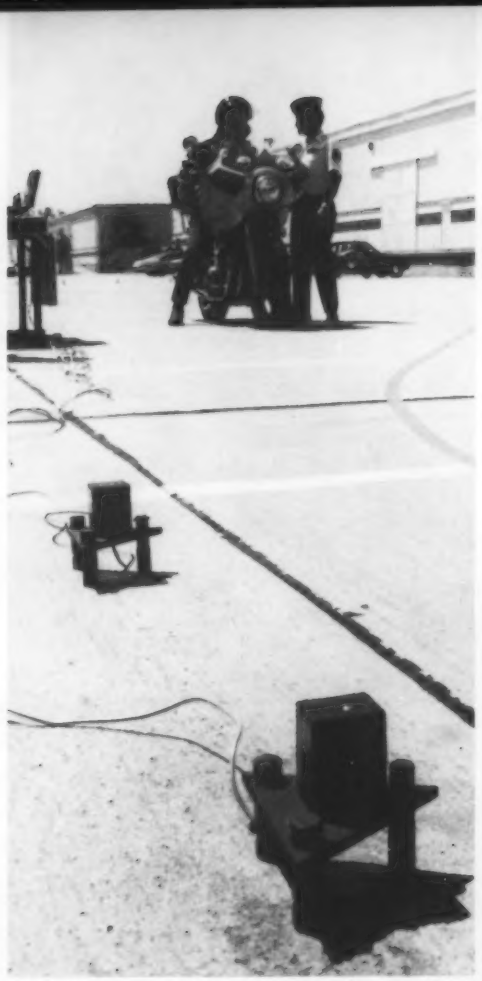
Pace yourself. Drink slowly — the slower the better. This will also help you maintain your control.

Stop when you've reached your limit — the limit you set before you start drinking.

If you have somewhere to go, wait a while before you go to the car. How long you wait depends on how much you've had to drink. The liver handles enough alcohol to lower the Blood Alcohol Level by just .015 per hour.

The trouble with all that calculating is that there are still too many variables — all those we have mentioned in the section on alcohol plus the proof of the alcohol and other factors.

There is, however, one foolproof way to gauge when you can drive in safety. Don't drink.

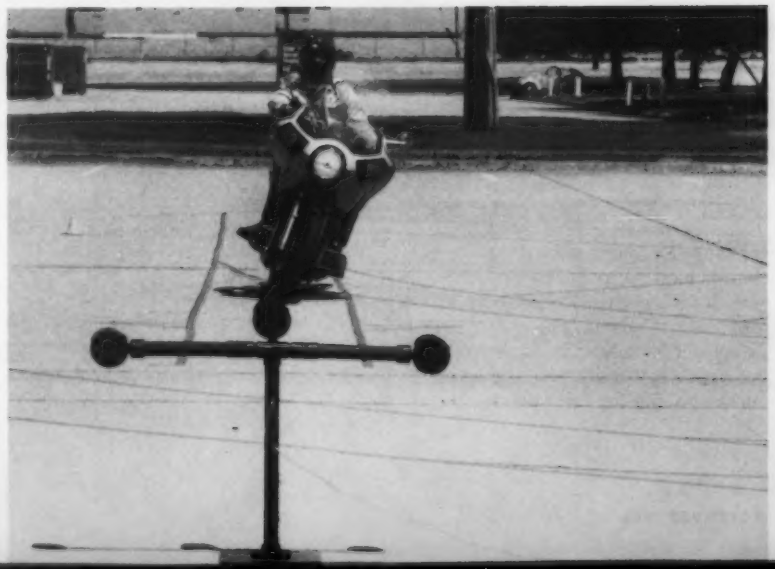


what's MOST II

(above, left)
MOST II is a test not a class — unless you fail. Here, the examiner explains to the rider what to do in the next exercise.

(above, right)
In exercise six the rider follows a curved path without touching or crossing the boundaries. Notice how this rider is doing it right by looking where he's going, not at the line immediately in front of the motorcycle.

(right)
The amber light has signaled for the rider to go to his left, which he is doing. However, he's still looking at the light instead of where he's going. As a result he "hit" the barrier line and was assessed five points.



...and why

A frequent letter received by the editor is from a motorcyclist complaining about being forced to take another motorcycle safety course. The writer will state that he or she has already attended more motorcycle safety classes than can be counted or remembered. Then he or she will claim to have ridden many thousands of accident free miles. Finally, he or she will argue that there can be no reason to take yet another motorcycle safety class.

What motorcycle safety course causes all this uproar? Well, would you believe that it's not even a class at all? It's a test. It's the Motorcycle Operator Skill Test, better known as MOST II.

MOST II is nine (sometimes eight) exercises which measure the rider's ability to handle a motorcycle. These critical exercises include starting, accelerating, turning and braking. Most of the exercises involve speeds of about 15 mph. None of them are difficult or dangerous for experienced riders.

The purpose of MOST II is to assess the rider's skill. When it was initially evaluated, riders who took the test and passed were found to have 14 percent fewer fatal accidents than those who didn't. Those who took the test and failed, attended a three-hour training program similar to Better Biking. Those who then retook the test and passed were involved in 21 percent fewer fatal accidents than those who never took the test.

Air Training Command reports even better results since implementing MOST II as a requirement for on-base motorcycle registration. Although exposure to possible motorcycle accidents remained the same during the first year of mandatory MOST II testing, they had a 29 percent decline in injuries (from 103 down to 73) and 63 percent fewer fatals (8 to 3).

According to L.C. Walls, an ATC traffic ground safety officer, a motorcycle rider who does NOT take MOST II and Course 7 is 17 times more likely to be injured or killed than a program graduate.

Within ATC there's been a 16 percent failure rate among first-time test takers. Those who fail can either attend a hands-on training program or use the MOST II test range for practice.

The first MOST II exercise (and one that's skipped sometimes because of the terrain necessary) is starting and moving up a hill. The rider positions his or her bike pointing up a 12-degree slope with the engine off. When signaled, the rider starts the engine (yes, the electric starter can be used), shifts into first gear and rides up the hill. Points in the overall scoring of the test are lost here for stalling the engine, letting the bike roll backwards, using the feet for balance after starting forward and taking more than one minute to complete the exercise from the time when the first attempt to start the bike was made.

In the second exercise the rider begins with a standing start and makes a sharp turn at low speed. Points are lost for letting a tire touch or cross the boundary lines and using the feet for balance after starting forward.

After completing the previous exercise, the rider continues to follow a three-foot wide curved path. The rider accelerates along the path and then slows and stops. Points are lost for letting a tire touch or cross a boundary line and for going too slow.

The fourth exercise begins from a standing start and follows the same curve but going in the opposite direction. Again points can be lost for letting a tire touch or cross a boundary line and going too slow.

Approaching the end of the curve, the rider will slow down and come to a smooth stop without skidding for exercise five. The rider must stop with the front tire inside a three-foot long, painted box. Points are lost for skidding and stopping with the front wheel outside the box.

Beginning from a standing start, the rider follows an eight-foot wide curved path at the highest speed he or she safely can without crossing the boundaries. Points for exercise six are lost for touching or crossing the lines and riding too slow.

The seventh exercise begins from a standing start with the rider accelerating normally to about 15 mph. When a red light at the far end of the course comes on, the rider must use both brakes to stop the motorcycle as quickly as possible. In this case the rider can lose points for taking too much space to stop, but not for skidding.

The eighth exercise begins just as the seventh, from a standing start and accelerating to 15 mph. This time an amber turn signal will direct the rider to go either right or left. The rider will turn in the indicated direction to avoid crossing over a painted barrier line which lies across the course. Then the rider will turn back before crossing the side line. Points are lost for letting a tire touch or cross the barrier or sideline and, of course, turning in the wrong direction.

The final exercise is similar to the seventh except that the rider will stop in a curved path rather than a straight line. The rider begins from a standing start and accelerates to 15 mph. He or she then enters and follows a three-foot wide curved path. When the red light comes on, the rider uses both brakes to bring the motorcycle to a stop within the curved path as quickly as possible. Again, points are lost for touching or crossing the boundary line and stopping beyond a standard stopping distance.

From zero to 71 points can be scored during the test. If all nine exercises are used, those riders who score 12 or fewer points pass. If only eight exercises are used, those scoring 11 or fewer points pass.

Of course, falling with or dropping the motorcycle during the test is an automatic failure. The examiner will also terminate the test if the point accumulation constitutes failure or the rider disregards instructions, commits an unsafe act, fails to understand instructions or takes too long.

As you can see, MOST II is a simple test that any experienced rider should enjoy challenging. And the results speak for themselves.

CART-ONE and CART-TWO spend most of their time at race tracks . . .

wouldn't it be NICE

When DRIVER tells you why racers are safer traveling at 150 mph than you and I are on the streets and highways, the focus is usually on the drivers and their machines.

You've heard it all before. The racers are highly skilled professionals. Individually they understand more about their surroundings than any dozen street drivers could ever hope to know. They use all the safety equipment that is available to them. And the machines are especially built for speed, but with safety being first and foremost.

However, there are other equally important factors that make racing on a race track safer than driving on the streets and highways. One of these factors for the competitors in Championship Auto Racing Teams (CART) events is two safety vehicles called "CART-ONE" and "CART-TWO."

To equal this safety factor on the public roads there would have to be a fully equipped emergency vehicle at every intersection, or every mile or two, manned by a doctor, a paramedic, a rescue expert and a fireman who know you and your vehicle personally.

Both of these Chevrolet crew-cab pickups are equipped with 500-pound "fire boss" units which spray "Purple K" powder to extinguish fires. In fact, CART's Safety Director Steve Edwards says they've actually been able to hit cars with the powder from the turret gun while the race car was still moving. The fire boss can also dispense the powder from a hose. In addition, each truck has three smaller fire extinguishers — two "Purple K" and one water.

The trucks are also equipped with various hand tools necessary for rescue work as well as a compound for drying up spilled oil. Of course, among the extrication equipment is the famed Hurst "Jaws of Life."

Extensive medical equipment is also on each truck. In addition to the first aid kit there is a defibrilator, MASS suit (also known as shock trousers) and fire blanket.

The Waterjel Fire Blanket is a 96-inch by 62-inch worsted wool blanket that is saturated in a gel-like thizotropic fluid similar to half-set jelly but without color. It can be draped around a person to extinguish a fire and also provides acceptable first-aid in that it offers an immediate cooling and soothing effect to the burnt area.

Of course each vehicle has radios for monitoring all race communications.

Edwards, Neal Carter (assistant director of safety), Dr. Steve Olvey (medical director) and Dr. Dave Crippen (assistant medical director) form the nucleus of the vehicle crews at every CART event. The augmented crew numbers from six to eight depending on the location of the race.

Because they're at all the races, the nucleus members know each of the drivers and the problems that each driver has that could affect rescue and medical attention. In addition, they know the systems and construction of each race car. Also, the crew chiefs will advise the safety crew if they make any changes to the race cars that could affect safety, especially during rescue efforts.

This communications carries on beyond the actual racing events. Edwards also works closely with the other CART officials in establishing regulations, particularly those that deal with safety. He also debriefs the other officials after all accidents.

Another portion of the communications comes before and after each event when Edwards pre-briefs and debriefs the local safety crews. Every track has its own quality safety personnel. But since they must handle several different types of racing during the year, when the championship Indy-cars of CART appear at their track there are special problems that must be addressed and dealt with.

The pre-briefing establishes the division of labor for the welfare of the participants and to give the fans a good show. It establishes who does what in case of an emergency. This lends additional continuity to the safety program.

"There's a lot of pride with safety people," says Edward. "Everybody works at a fevered pitch when there's an emergency. Everybody wants to be the one who helped."

Since the threat of a critical fire has been all but eliminated with design changes to Indy-cars, rescue workers can now concentrate on stabilizing the driver in the wrecked vehicle before removing him or her, pre-packaged for emergency transportation. In the past, many injuries were caused or made more severe in the rush to get the driver out of the fire-prone wreck.

The National Hot Rod Association (NHRA) has a similar safety crew known as the Safety Safari at all its World Championship Series events. However, they still have fire problems to contend with when supercharged engines explode, igniting everything around them including the oil.

Many drag racers report that their cars

. . . parked and waiting.

However, when there is an emergency they roll.

were still rolling and the fire raging when they saw the hands of the NHRA Safety Safari's "fire diver" reaching in to free them. All that while the rest of the safety crew was hitting the fire with extinguishers.

Louisiana State Police recently cited the NHRA Safety Safari for turning a potential disaster into a minor problem when the safety crew responded to a public highway crash just outside the gate of a dragway where they were overseeing a race.

The major thing the safety crew did was eliminate a possible explosion when they knocked down the ensuing fire. However, they also kept those involved calm and therefore controlled shock.

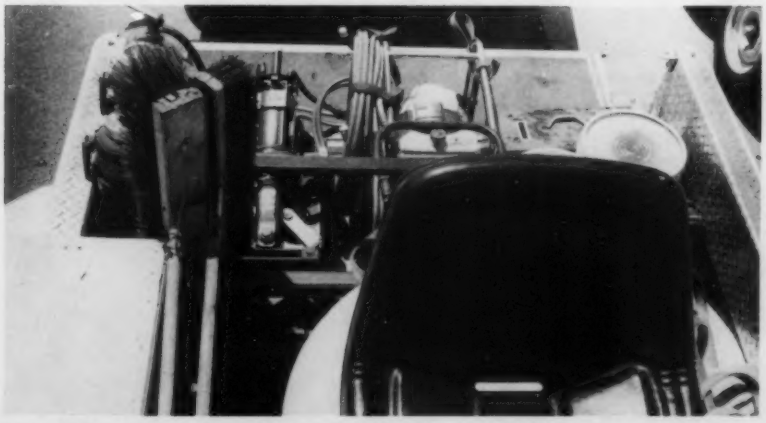
As the editor of the *National Dragster* recently wrote, "Wouldn't it be nice to have a crew like that at every major intersection, so we could feel as secure on the road as racers do at NHRA drag races?"

Although it was only a minor spin for Pancho Carter during the Los Angeles Times/Budweiser 500, the CART safety crew was on the scene before the smoke from the tires settled.

Yes, it would be nice if such crews were at every intersection, but they aren't. So you should carry in your own car at least a fire extinguisher rated for gas and electricai fires as well as a good first aid kit.

Another item that could come in very handy would be a fire-proofed blanket. To make a blanket fire resistant dissolve 10 ounces of Borax and 8 ounces of boric acid in one gallon of hot water. Dip and soak the blanket three times; letting it dry between soakings. The solution is water soluble so the process must be repeated after washing or dry cleaning the blanket.

For an idea of what to carry for emergencies that affect the running of your vehicle, see the Backyard Mechanic, May 1983 in DRIVER.

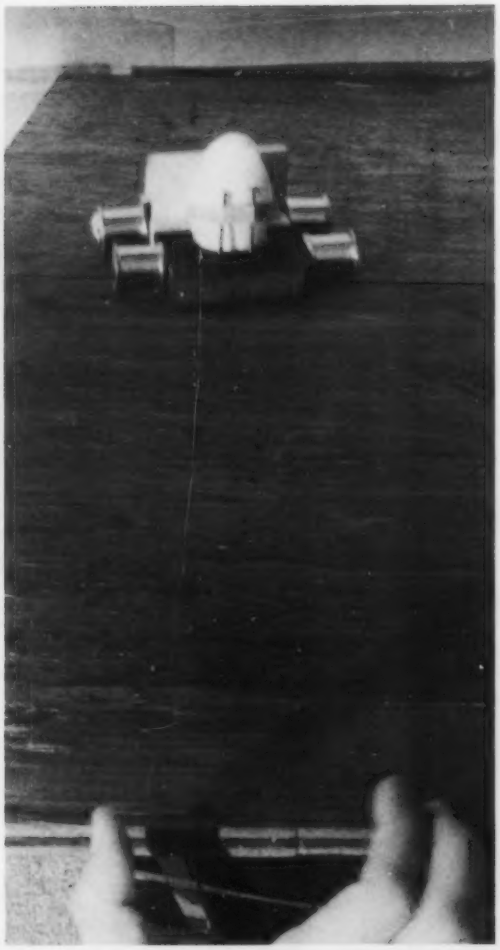


Every inch of space in CART-ONE and CART-TWO is packed with emergency equipment.

(right)
Not every safety job is glamorous. Here, CART Safety Director Steve Edwards cleans up spilled fluids with an oil-dry compound.

Here's the rather crude little car, complete with a passenger who may know what's in store for him.

take a CRACK at it



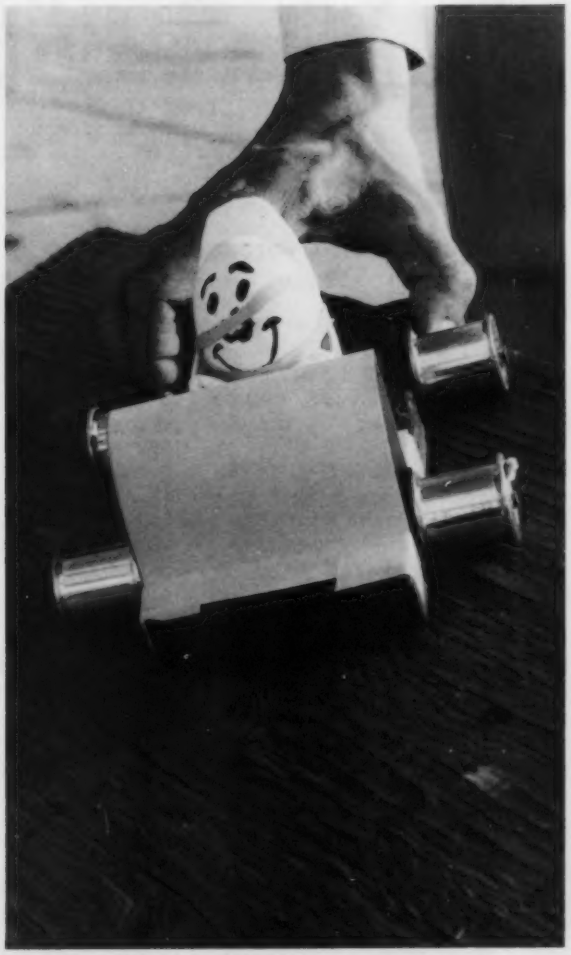
Using a board as the road and a cement wall as the barrier we let the car take a run.

(right)
The unrestrained passenger ends up outside the car, never to take another ride.

One of the functions of seatbelts and safety harnesses is to keep the occupants inside the car in an accident, where they have a better chance of surviving unharmed. They are 25 times more likely to be killed if they are thrown out of the automobile than if they stay inside.

The Department of Transportation gave us an idea to graphically show the benefits of restraints. Using wood, paper, small spools and a styrofoam cup for the car and eggs for the passengers, they showed how to make a seatbelt demonstrator that does a good job of convincing people.

You might want to take a crack at it yourself.



This other "driver" is equipped with a rubber band version of a seatbelt and shoulder harness.

He stays inside the seat, ready for another try.

JUSTICE SUES GENERAL MOTORS OVER X-CAR DEFECTS

Acting on behalf of the Department of Transportation (DOT), the Justice Department is suing General Motors to force a recall of all 1.1 million 1980 model X-cars for brake-related defects and payment of a civil penalty in excess of $4 million.

The complaint accuses GM of equipping these cars with brakes that the company already knew were defective from its own tests. The company then attempted to cover up the defects by giving false information throughout a three-year federal investigation of the matter, Justice said. The complaint was filed in the U.S. District Court for the District of Columbia.

Transportation Secretary Elizabeth Dole said this was the first action brought under the National Highway Traffic Safety Act asking for civil penalties against a manufacturer for providing false information during a defect investigation.

"The complaint is one of the most serious ever filed by NHTSA (National Highway Traffic Safety Administration), and it reflects the priority this department has for automobile safety," said Dole.

The cars involved include the 1980 model Chevrolet Citation, Pontiac Phoenix, Buick Skylark, and Oldsmobile Omega. About 1.1 million of the cars were manufactured between Jan. 1, 1979 and Aug. 1, 1980.

GM disputed the charges and said it would fight the lawsuit.

The defect involves the braking system, which the government says has a tendency to cause the rear wheels of the cars to lock prematurely. When the rear wheels of the front-wheel drive cars lock, the cars can go into uncontrollable skids, NHTSA has said.

The agency says it has received more than 1,700 complaints about lock-up incidents, many of them allegedly resulting in accidents. NHTSA said it has received reports of 71 injuries and 15 deaths attributed to the defective brakes.

There already have been two recalls involving the braking defect. One was begun in 1981 and involved 47,000 cars equipped with manual transmissions. The second was conducted in February 1983 and covered 240,000 — including the 47,000 that had already been recalled. In both cases, the complaint states GM knew that the extent of the recall and the proposed repairs were inadequate.

(Insurance Institute for Highway Safety Status Report)

NHTSA MAKES INITIAL DEFECT FINDINGS AGAINST VOLKSWAGEN

The National Highway Traffic Safety Administration (NHTSA) has made initial determinations of safety-related defects in two separate investigations involving vehicles sold in this country by Volkswagen of America.

One initial determination covers 650,000 model year 1975-1980 Rabbits and Sciroccos for brake line failures. All the vehicles were manufactured in Germany. Domestically produced Volkswagens, which are easily identifiable by their square-shaped headlights, are not involved in this determination.

The other initial determination involves an estimated 930,000 model year 1976-1982 Volkswagen and Audi vehicles equipped with fuel injected gasoline engines which are experiencing electrical system problems.

The investigation involving Rabbits and Sciroccos for brake line failures was opened April of this year after the agency received 96 owner reports of brake line failure, which resulted in eight accidents and three injuries.

In these imported vehicles, the hydraulic lines to the rear brakes are routed along the floor inside the passenger compartment. NHTSA said moisture can collect under the carpets causing corrosion. This in turn can cause the line to rupture and may result in a sudden increase in the distance required to stop the vehicle when the brakes are applied. There have also been reports of complete loss of braking when the rupture occurs.

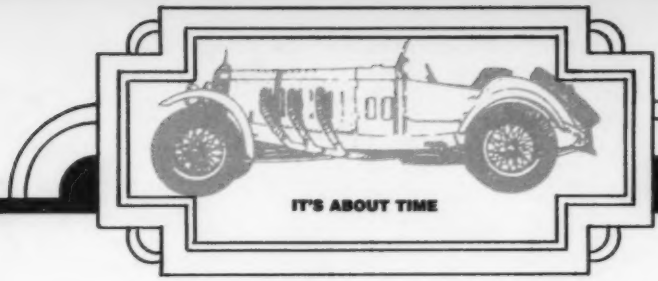
The problem, NHTSA said, may begin with pin hole leaks which in turn may cause an odor in the passenger compartment. Also, there may be changes in the distance the brake pedal travels during brake application. In some cases, however, owners have reported failures with no warning.

Domestically produced vehicles, manufactured with the brake lines routed outside the passenger compartment, have not experienced the problem.

NHTSA said Volkswagen is aware of the problem and has begun a service campaign to inspect the vehicles involved and repair them as necessary. VW does not consider this a safety problem, claiming the failure usually affects only half of the dual braking system, leaving the brakes on two of the four wheels functional. NHTSA said, however, that the agency does consider the defect to represent a safety hazard noting that many owners have reported total brake failure.

If a final determination of a safety-related defect is made by NHTSA, Volkswagen would be required, under the law, to notify all vehicle owners of the existence of the defect and would be required to remedy the problem and report progress of the recall to the agency.

The other investigation covering Volkswagen and Audi vehicles was begun in March 1982 and involves both vehicles manufactured in Germany and those produced in this country before 1981. Beginning with 1981 model year production, domestically manufactured



vehicles have a substantially different electrical system and are not included.

NHTSA said the determination of defect is the result of more than 3,000 consumer complaints, including reports of stalling, inability to start the engine, or detection of smoke, fumes or electrical fires caused by overheated components in the electrical system. Four property damage accidents and one injury have been reported.

The federal safety agency said the vehicles involved are 1976-1982 VW Sciroccos; 1976-1980 Dashers; 1977-1980 VW Rabbits; 1980-1982 VW convertibles; 1980 VW pickups; 1980-1982 VW Jettas; 1976-1979 Audi Fox models and the 1980-1981 Audi 4000.

NHTSA said Volkswagen is aware of this problem and has conducted a number of service campaigns to modify the electrical systems of these vehicles. Again VW does not consider this a safety problem, claiming that the failure results mostly in hard starting and only rarely in stalling. Many owners, however, have reported to NHTSA incidents of stalling while the vehicle is in motion, leaving the vehicle disabled on the road and needing to be towed from the scene.

Again, if a safety-related defect determination is made by the agency, Volkswagen would be required to conduct a safety recall campaign under provisions of the law.

BE KIND TO YOUR CAR

Be kind to your car when you drive in cold weather. Don't put needless wear and tear on it by using poor driving habits, says the Automotive Information Council.

You may be tempted to drive with both feet if you have a car that stalls during cold weather warm-ups, but don't. Driving with one foot on the accelerator and one on the brake places strain on the engine, brakes and transmission and can cause them to wear out prematurely. If a car stalls during warm-up, have it looked at by a mechanic.

Motorists should also avoid "gunning" the engine when attempting to free the car from ice, snow or mud. A driver pushing the engine to a speedometer reading of 85 mph is really spinning one tire at 170 mph if the other tire remains stationary. This puts an excessive strain on the rotating tire which it was not intended to take and the tire could explode.

If you get stuck in a snow drift, don't try rocking the car out. Rocking causes extra wear and tear on the transmission and can lead to damage costing several hundred dollars to repair. If you find it absolutely necessary to rock the car, first go as far as possible in one direction and apply the brakes. When the wheels have stopped, shift to the opposite direction and repeat, but always come to a full stop.

A better solution to rocking is to keep traction strips, salt, sand or an old rug in the trunk of the car and use them under the wheels for traction.

When your car needs to be towed, make sure it is done properly. The drive wheels should always be elevated to avoid damage.

AUTO BREAKDOWN REASONS

The American Automobile Association (AAA) found that the biggest contributors to automobile operating troubles are starting difficulties. They accounted for 45 percent of the service calls performed by the AAA for their 23 million members. The next largest reason for service calls was on-road mechanical breakdowns, accounting for 35 percent. The third largest reason for service calls was a flat tire, representing 10 percent of the problems.

HERTZ DRIVING COSTS STUDY

Hertz Corporation's annual vehicle driving costs study showed spending for 1982 motor vehicle operation was up the smallest increase in a decade. Spending to own and operate cars and trucks during 1982 rose just 3.5 percent, or less than a cent a mile. The study showed annual driving mileage at 8,037, compared with 10,360 miles in 1972 before the Arab oil embargo.

BOOZERS ARE BIGGER LOSERS

Boozers continue to be losers in the minds of the American public, and the tide is rising even higher, according to the results of a recent survey by the All-Industry Research Advisory Council.

The survey, conducted by the firm of Yankelovich, Skelly and White, indicates that 51 percent of those polled approved of police roadblocks to administer alcohol tests on drivers. That opinion increased from a 45-percent level a year ago. The term "roadblock," however, seemed to be a bit of taboo for respondents. When the question was rephrased and the word "roadblock" dropped, the level shot up to 61 percent.

What to do with drunk drivers who cause serious injury in a crash? Send them to the pokey, said 54 percent, while only 9 percent advised jail for the drinking drivers who have no prior record and who cause no injuries. Further addressing the drunk driver who causes serious injury, 22 percent of those asked advised license suspension, 19 percent would pull the license for all use except to and from work, and 3 percent would impose a fine.

(AutoWeek)

The following is the Moped Association of America's most recent list of state laws affecting mopeds. Only five states — Alabama, Alaska, Idaho, Mississippi and Utah — have no laws governing licensing and operation of the little two-wheelers. (Special regulations are listed under the state name.)

STATE MOPED LAWS

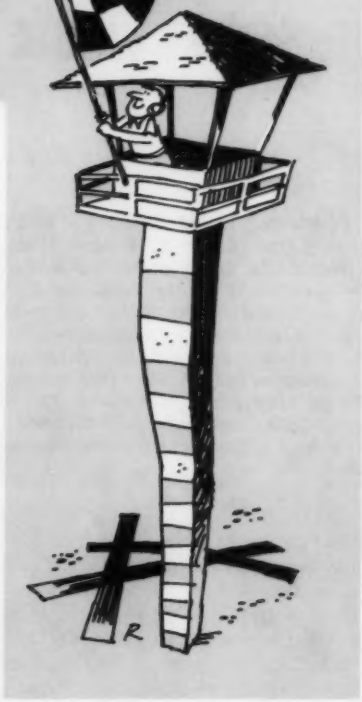
State	Minimum Age	License Rules	Registration Requirements	Speed Limit	Maximum Engine Limits	Legal Definition	Mandatory Insurance	Mandatory Helmet
Arizona	16	any driver's license	yes	25 mph	1.5 hp 50 cc	pedal bicycle w/helper motor	no (financial responsibility)	no
Arkansas	none	none required	none	30 mph	2 hp 50 cc	motorized bicycle	no	no
California	15½	any driver's license; or learner permit	yes	30 mph	2 hp	motorized bicycle	no (financial responsibility)	no
Colorado	16	any driver's license	yes	30 mph	2 hp 50 cc	motorized bicycle	no	no
Connecticut	16	any driver's license	none	30 mph	2 hp 50 cc	bicycle with helper motor	no	no
Delaware	16	any driver's license	yes	25 mph	1.5 hp 55 cc	moped	no	no
Dist. of Col. Inspection	16	any driver's license or mot. bic. p'mit	yes	25 mph	1.5 hp 50 cc	motorized bicycle	no (financial responsibility)	no
Florida	15	any driver's license; or learner permit	yes	25 mph	1.5 hp	moped	no	no
Georgia	15	any driver's license; or learner permit or limited p'mit	none	30 mph	2 hp 50 cc	moped	no	yes
Hawaii	15	any driver's license; or spec. learner permit	yes	35 mph	1.5 hp 50 cc	moped	no	no
Illinois	16	any driver's license	yes	30 mph	2 hp 50 cc	motorized pedalcycle	no (financial responsibility)	no
Indiana	15	none required	none	25 mph	1.5 hp 50 cc	motorized bicycle	no	no
Iowa No Passengers	14	any driver's license; or mot. bic. lic.	yes	25 mph	50 cc	motorized bicycle	no (financial responsibility)	no
Kansas	14	any driver's license; or mot. bic. lic.	yes	30 mph	3.5 hp 50 cc	motorized bicycle	no	no
Kentucky	16	any driver's license; or moped license	none	30 mph	2 hp 50 cc	moped	no	no
Louisiana	15	any driver's license	none	25 mph	1.5 hp 50 cc	motorized bicycle	no	yes
Maine	16	any driver's license	yes	30 mph	2 hp 50 cc	moped	no (financial responsibility)	no
Maryland	16	any driver's license; or moped permit	none	none stated	1.5 hp 50 cc	moped	no	no
Massachusetts	16	any driver's license; or learner permit	yes	25 mph	1.5 hp 50 cc	motorized bicycle	no	no

State	Minimum Age	License Rules	Registration Requirements	Speed Limit	Maximum Engine Limits	Legal Definition	Mandatory Insurance	Mandatory Helmet
Michigan No Passengers	15	any driver's license; or moped license	yes	25 mph	1.5 hp 50 cc	moped	no	no
Minnesota	15	any driver's license; or mot. bic. p'mit	yes	30 mph	2 hp 50 cc	motorized bicycle	no	no
Missouri	16	any driver's license	none	30 mph	2 hp 50 cc	motorized bicycle	no	no
Montana	16	any driver's license	none	30 mph	2 hp 50 cc	bicycle	no	no
Nebraska	14	any driver's license; or learner permit; or school permit	none	30 mph	2 hp 50 cc	moped	no	no
Nevada	16	any driver's license	none	30 mph	none stated	moped	no (financial responsibility)	no
New Hampshire	16	any driver's license or moped license	yes	30 mph	2 hp 50 cc	moped	no (financial responsibility)	no
New Jersey No Passengers	15	any driver's license; or mot. bic. lic.	none	25 mph	1.5 hp 50 cc	motorized bicycle	yes	yes
New Mexico	13	any driver's license; or restricted lic.	none	25 mph	50 cc	motorized bicycle	no	no
New York (Class C)	16	any driver's license; or spec. license	yes	20 mph	none stated	limited use Class "C" motorcycle	no (financial responsibility)	no
New York (Class B)	16	any driver's license; or spec. license	yes	21-30 mph	none stated	limited use Class "B" motorcycle	yes	yes
North Carolina	16	none required	none	20 mph	50 cc	moped	no	no
North Dakota	14	none required	none	30 mph	2 hp 50 cc	motorized bicycle	no	no
Ohio	14	any driver's license; or mot. bic. lic.	none	20 mph	1 hp 50 cc	motorized bicycle	no	no
Oklahoma Inspection	14	any driver's license or restricted license	yes	30 mph	2 hp 50 cc	motorized bicycle	yes	yes, for those under 18 yrs. old
Oregon	16	any driver's license; or moped license	yes	30 mph	50 cc	moped	yes	no
Pennsylvania	16	any driver's license	yes	25 mph	1.5 hp 50 cc	motorized pedalcycle	yes	no
Rhode Island	16	any driver's license	yes	30 mph	2 hp	motorized bicycle	no	no
South Carolina	12	none required	none	20 mph	1 hp	bicycle with helper motor	no	no
South Dakota	14	any driver's lic.; instruction permit; or restricted p'mt	none	30 mph	2 hp 50 cc	moped	no	no
Tennessee	14	any driver's license or mot. bic. p'mit	yes	30 mph	2 hp 50 cc	motorized bicycle	no	yes
Texas Inspection	15	motor assisted bicycle license (written test)	yes	20 mph	60 cc	motor assisted bicycle	no	no
Vermont Inspection	16	any driver's license	yes	30 mph	2 hp 50 cc	moped	no (financial responsibility)	no
Virginia	16	none required	none	30 mph	2 hp	moped	no	no
Washington	16	any driver's license	yes	30 mph	2 hp 50 cc	moped	no (financial responsibility)	no
West Virginia Inspection	16	any driver's license	yes	30 mph	2 hp 50 cc	moped	no (financial responsibility)	no
Wisconsin No Passengers	16	any driver's license	yes	30 mph	50 cc	moped	no (financial responsibility)	no
Wyoming	16	any driver's license	none	30 mph	2 hp 50 cc	moped	no	no

Air Force FASCINATION

What would one of the world's premier racing drivers have chosen for a career if he hadn't become World Driving Champion as well as winner of both the Indianapolis and Daytona 500s? Mario Andretti's answer is "an Air Force fighter pilot. I've a fascination with Air Force fighter pilots. I respect their skill. We share a lot in common, mainly discipline and respect. But, more important, we have dedication."

(below)
For every hero, fighter pilot or racer, there's a dedicated crew that makes it all possible. Crew chief Darrell Soppe (left) and aerodynamics expert Tony Cicale are just a few of those who help Mario win races. "My racing cars are built fast, stable and predictable for the greater feel I have," notes the winner of 36 Indy-car races. "However, safety is always first."



(above)
Mario was leading the Los Angeles Times/Budweiser 500 at Riverside, Calif., when a broken shifting lever handed the win to Bobby Rahal in the #2 car. Mario says it's "impossible to relate racing with street driving. There's no similarity at all. Racing is a nonparticipant sport. People shouldn't try to find out what it feels like to be a racing driver on the streets."

One of the top fan draws in motor sports, Mario Andretti, discusses the Budweiser Lola T-700 he drives with one of the top fan draws in motion pictures, Paul Newman. An accomplished racer in his own right, Newman is also co-owner of the car that Mario races. Both men agree that the most important safety factor in any car — racer or street — is still the safety belts. Because of the greater speeds involved, racing belts are the five-point variety rather than the three-point ones found in street machines.

tteecc!h!n

double tech with tsgt ron lathrop

COMMENT: I question some of your driving tips in the September 1983 "What's the Backyard Mechanic To Do? Sell? Lend? Store?" You say it's best to let the engine idle at 2,000 rpm until the temperature gauge moves off the peg before driving away. I've heard that it's best to drive away as soon as the car will move without stumbling. In fact, I think I read that in DRIVER once. And isn't 2,000 rpm an awfully high idle?

REPLY: You have a choice: You can give your engine the best care or you can give it the most economical care. If you choose to treat it to the best care, wait until the temperature gauge moves off the peg before driving away. But if you're looking for the most economical care, then drive away as soon as the engine will permit without stumbling.

Personally, I go with the most economical care. But then again, I seldom keep a car more than 100,000 miles or four years, whichever comes first.

As for the 2,000 rpm idle, the idea is to run the engine fast enough that it's not running over rich as it does when left to idle at factory setting which usually range from 1,500 to 1,800 rpm

COMMENT: The mileage figures printed on new car window stickers don't seem to be very realistic. I don't know anybody who's ever come close let alone actually gotten what the manufacturers claim the cars will deliver in miles per gallon. I think these figures are a rip-off. And don't tell me about the asterisk that says "use estimated mpg for comparisons. Your actual mileage will probably be less." It *will* be less. Where do they get their mpg figures — out of a hat?

REPLY: Actually they get their figures from tests established by the Environmental Protection Agency. The EPA sets the specifications for the tests and the manufacurers run their cars against these standards. To help keep the manufacturers honest, the EPA can come in and pull production vehicles to evaluate against the same standards.

The tests are constantly being changed to provide more realistic figures. The last time I checked they were using a 7.5-mile cycle for the "city" portion and a 10.2-mile cycle for the "highway" figures.

The "city" cycle resembles a 7.5-mile Los Angeles commute in 75 degree weather at an average speed of 19.7 mph. The top speed in the city cycle is 60 mph. The car is accelerated 34 times, run on a short cruise 16 times, decelerated 32 times and left at a short idle 20 times during this 23-minute city cycle.

The 10.2-mile highway cycle is run non-stop between 30 and 60 mph, with an average speed of 48 mph.

While you asked me not to, I have to tell you that the figures are for comparisons only. Although I can honestly say that with good maintenance and driving habits it is not only possible to get the EPA figures, they can be bettered. How does 55 mpg grab you for a car that is stickered at 45 for the highway?

Recently a compact car was taken out for a steady 60 mph cruise (note this was a steady 60 mph, not the EPA 30 to 60 mph cruise) and it delivered an honest 37.5 mpg. The same car was taken on the same cruise but in third gear instead of fourth and lost 9.0 mpg. A roof-top carrier was put on the same car and that cost 6.0 mpg.

To show how much the body design plays in economy, the testers deteriorated the car's drag coefficient by opening the hood one foot. The mpg fell off 2.5.

They also did some more common tests such as running the car with the air conditioning on and lost 3.0 mpg. They rolled the windows down and lost 1.0 mpg.

Also, in keeping with what DRIVER has been telling you for years, they let some air out of the tires. Instead of carrying the recommended 30 psi, they ran the tires underinflated at 20 psi and lost 0.5 mpg. They also ran the test with overinflated tires (40 psi) and got zero gain in mpg.

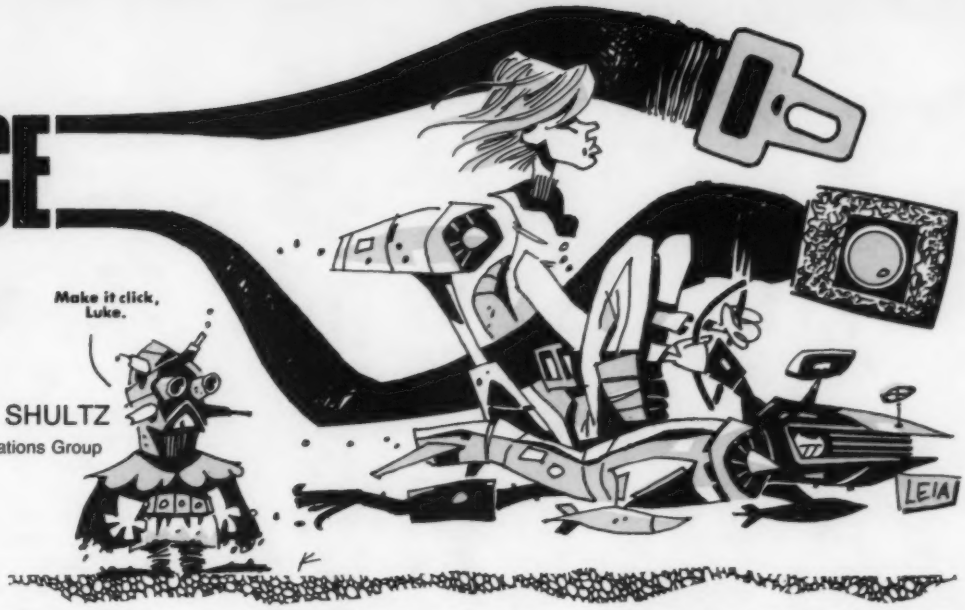
Carrying an extra 775 pounds in the test car cost 1.5 mpg.

Basically, the reason most people don't near the EPA mileage figures is poor habits. They don't follow good maintenance practices and their driving isn't as good as it should be. Allowing a car to move away from a traffic signal at the speed of a slow idle is just as bad for the fuel economy as a tire burning, accelerator to the floor getaway.

EDITOR'S NOTE: If you have a general interest automotive comment that you would like a reply to, and feel others could use the information also, send it to:

DOUBLE TECH
DRIVER MAGAZINE
HQ AFISC/SEDD
NORTON AFB, CA 92409

may the FORCE be with you



by
Capt. DAVID A. SHULTZ
2nd Combat Communications Group
Patrick AFB, Fla.

As an eager, ambitious young safety officer at Gibbsboro AFS, New Jersey, I wanted to usher in the winter season by the most popular and impressionable means available. I decided to show the troops a film on the hazards of winter driving.

So there I was on a cold October morning with my slightly less than eager safety NCO, preparing to embark on a 40-mile journey to the McGuire AFB audio visual section. My safety NCO was quick to point out the unstable weather conditions as we approached our GSA vehicle in the motor pool.

"Sir, not to question your reasoning abilities or anything, but have you noticed the overcast skies and the below-freezing temperatures?" he asked.

"No sweat, Sarge," I replied. "It's not snowing now, is it? And we'll be up and back before you can say Rudolph the Red Nosed Reindeer."

"Yeah, sure, inclement weather breath," my safety NCO probably thought.

The integrity of my meteorology degree was questionable less than 48 seconds later. Just as we exited the site, mass quantities of snowflakes began to pour from the skies.

"Sir, it's not too late to turn back," the sergeant mentioned.

"Sarge, it's only a light snowfall! Besides, I'm a weatherman, so don't worry about it."

"That's uh . . . very comforting, sir," the safety NCO retorted, as he looked towards heaven wondering what the human race did to deserve second lieutenants.

Two inches of snow and three slippery traffic jams later, I realized what my safety NCO realized the moment he learned of this ill-fated mission — maybe this wasn't such a bright idea after all. But I dauntlessly proceeded onward, closing to within eight miles of McGuire. I found the snow-laden roadway and the safety NCO's semi-abusive grumblings somewhat challenging, yet manageable.

Suddenly, just as I thought it was safe to go back in the water, a great white Oldsmobile 98 emerged from the sea of houses on my right. The driver appeared to be oblivious to the hazardous road conditions. (The driver also appeared to be devoid of even the remotest trace of common sense.) Her belated effort to stop proved futile, as the car slid through the stop sign and came to rest directly perpendicular to my path of motion.

During the ensuing few seconds before the inevitable collision, my mind became like a high-speed computer processing an "Emergency Evasive Actions" program:

TURN TOWARDS RIGHT

"Can't, there's a ditch to the right!"

TURN TOWARDS LEFT

"There's a ditch on the left!"

GO AROUND VEHICLE

"Can't, the car spans the entire street!"

Pause.

"What now?"

PRAY, RALPH

"We're going in!" I yelled, as I depressed the brakes. I grabbed the steering wheel, my safety NCO grabbed the dashboard, but, unfortunately, the tires failed to grab the pavement thanks to an unyielding blanket of ice. I was overwhelmed with a consummate feeling of helplessness.

As we impacted the great white Oldsmobile, our momentum carried us forward toward the windshield. I envisioned a bloody scene as my head would bash through the windshield and be cut to shreds by the jagged glass. All of a sudden, just as my nose was becoming closely acquainted with the windshield, I was overcome by "The Force" — the force of my seatbelt tugging me firmly back into place and saving me from imminent mutilation.

The final results looked something like this:

Number of people involved: 4
Number of people wearing seatbelts: 4
Number of people injured: 0
Extent of damage: $300 per car
Number of prides tarnished: 1 (mine)

I learned a number of lessons from that incident, such as why the Air Force put me in communications instead of weather. I learned to be a bit more cautious of "the other guy" in order to avoid becoming a victim of his or her incompetency. And above all, I learned the importance of "making it click" to prevent that second collision. I was amazed that although our speed was less than 10 miles per hour on impact, we would've certainly eaten the windshield had it not been for "The Force."

Let "The Force" be with you! Buckle up!

Oil filter wrenches are usually found in better surroundings, but not everybody has easy access to an auto hobby shop to do their oil changes.

The first step in an oil change is the purchase of a new filter and oil. The counterperson can usually help you select the proper weight oil for your climate and driving.

OIL change

While oil doesn't wear out, the additives in it do get depleted. The contaminants level in oil constantly increases because combustion products continually slip past the rings into the oil. These increasing contaminants make it more and more difficult for the oil to protect and lubricate the engine.

The additives in oil help prevent rusting and corrosion by neutralizing acids and/or retarding the deterioration (oxidation) of the oil that takes place at high engine temperatures. Other additives are dispersing agents which keep sludge and varnish-forming products resulting from combustion suspended so that they don't cause damage or deposits. Still other additives help the oil to resist thinning when hot or thickening when cold, help form lubricating films strong enough to withstand the extreme pressures in the engine, and prevent entrapped air from foaming.

The base oil keeps wear at a minimum, provides for smooth and even movement of the parts, and keeps out water and dirt. Without proper lubrication there would be so much friction that heat would melt some engine parts.

Since it isn't practical to clean the oil and replenish the additives, the engine crankcase must be drained regularly to remove the accumulation of contaminants and refilled with clean oil.

The rate of contamination depends on driving conditions. The more severe the conditions, the more frequently the oil should be changed. However, it is impractical for the individual to decide when the contaminant level is too high.

To overcome this problem, each automobile manufacturer recommends oil change intervals, but these change from year to year and vary from manufacturer to manufacturer. Some recommend different intervals for different kinds of driving conditions. For example, a manufacturer may recommend changing the oil at least every 7,500 miles or six months, which ever comes first, followed by an asterisk. The asterisk footnote will say something such as: If the vehicle is operated under the following conditions, it is suggested that the engine oil and oil

With the proper clothing on (no watches or jewelry) begin the oil change by setting the emergency brake.

Before jacking the car up, chock both sides of both rear wheels.

filter be changed more frequently.

a) Driving in dusty conditions
b) Extended period of idling or low-speed operation
c) Driving for a long time in cold temperatures, or driving short distances only

What this means is if you drive your car on a straight, level dust free expressway at 55 mph without stopping, in 75 degree weather for at least three hours straight, you can follow the manufacturer's recommendation of 7,500 miles between oil changes. Otherwise you should change the oil and filter more often.

How often is more often? If you halve the manufacturer's recommendations you'll have a good starting point. In the case used here that would be every 3,750 miles or three months. Actually every 3,000 miles or three months is a good base line.

Also, change the oil filter everytime you change the oil, not every other time as many manufacturers suggest. The filter may hold up to a quart of old oil, so as soon as you start the engine you'll add a quart of contaminated oil to the clean oil.

Jack stands and soil don't mix. Always place a board between a jack stand and soil.

(right)
While there's no lift such as at the auto hobby shop and the floor isn't concrete as in a good garage, you can still do an oil change here.

(right)
Once the car is up and safely on the jack stands, loosen the crankcase drain plug with the proper size wrench or socket. On front-wheel drive vehicles make sure you're removing the oil drain plug and not the transmission plug.

continued

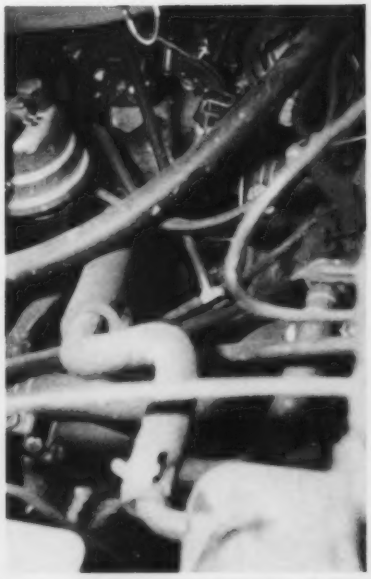
continued

With a drain oil receptacle in place, finish removing the plug. WARNING: The oil and plug will both be hot. Also the oil will shoot out when the plug is first removed so be sure the catch pan is positioned for this gush.

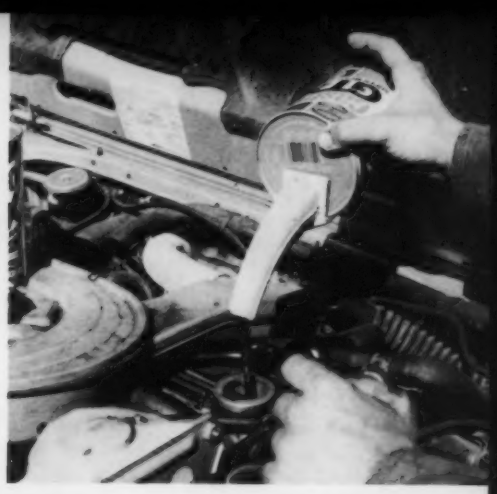
While the oil is draining from the pan, loosen the oil filter with a special filter wrench. You may not be able to see the filter from above and may have to try to get at it from both above and below.

Once the filter is loose, spin it off and remove it. Again, you may not be able to see what you're doing and the filter will also be hot.

Apply a thin film of oil to the canister so that it will be easy to remove at the next filter change.



The new filter goes in the way the old one came out. Be sure to wipe the filter mount before installing the new filter hand tight, which is usually a half turn beyond when the seal first makes contact. Again, you may not be able to see what you're doing from above.



(above, left)
Reinstall the oil drain plug and torque it tight.

(above, middle)
Make sure the oil is of the type specified by your manufacturer. The letter of concern is the "SF-SE-CC" under the universal product code on this can.

(above, right)
Pour in the amount of oil called for in your owner's manual and then reinstall the filler cap.

(near right)
After checking the oil level and looking for leaks, start the engine. The oil warning light should go out in a few seconds (or the gauge come up to pressure). Let the engine run for half a minute or so and turn it off.

(far right)
Recheck the oil level.

Crawl back under the car and recheck for leaks, especially around the drain plug and filter.

For the next week, check where you park the car for oil spots that indicate a leak or a damaged filter.

Make a note of your oil change in your vehicle log as well as a note to yourself as a reminder of when to change it and the filter again. Keep all the receipts for warranty purposes.

BACKFIRE
LETTERS to the EDITOR

IT COULD HAPPEN TO ANYONE EVEN YOU!

I have read and enjoyed numerous articles in DRIVER Magazine. I have one incident that I feel I should mention. I understand DRIVER deals with driving safety, be it with cars, trucks, motor bikes, dirt bikes, etc. I want to say that I was one of those people that used to say, "It could *never* happen to me!" Well, I was wrong, and I wouldn't want what happened to me to happen to any one else.

About two years ago, my husband Mike bought a brand new dirt bike. Since he told me about all of his past driving experiences with a dirt bike, I assumed he knew enough about them so I needn't worry any further.

This particular trip that Mike and a friend were going on was no different than all of the other biking trips he had been on before. It had rained the day before and they wanted to go "mud slinging."

They were just getting into the hang of the hills and decided to go several miles away (where they had never been before) to try some hills that were different. Mike decided to try one of these hills first. He sped up the hill increasing his speed as he neared the top, thinking that it would go down the other side. Well, the other side went *straight* down.

He was badly hurt. By the time I got him to the base hospital he looked very bad. All I can say is that I'm really glad that he wore his safety gear (i.e. a helmet, goggles, leather gloves, a padded shirt, pants, and safety boots). The doctor that examined him said it was a *good* thing he wore all of that safety gear. If he hadn't, he could have lost two fingers (his left index finger was almost severed when the bike fell, and when he attempted to get out from under the bike his left middle finger was badly pinched). He also could have received internal injuries as well as losing a lot of skin. His whole left side from the shoulder, down the arm and left leg was rubbed raw. He also could have broken several bones.

I am glad I still have Mike with me, thanks to the buddy system and safety gear. If it weren't for those things I wouldn't have Mike. If any of you are thinking of going biking, just *know* the area that you will be riding in and please wear your safety gear. That's what it's meant for. Who knows, one day it may happen to you, so be prepared.

Sgt. Valerie Hall, USAF
Mather AFB, CA 95655

COLLECTOR'S ITEMS!

The following is a list of early issues of DRIVER Magazine. If someone is collecting the magazine they can have these if they pay the postage:

1967 — Aug.
1968 — Feb., Mar., Nov., Dec.
1969 — Feb., Mar., May, Jun., Jul., Aug., Sept., Oct., Nov., Dec.
1970 — Jan., Feb., Mar., Apr., May, Jun., Jul., Aug., Sept., Oct., Nov.
1971 — Jan., Mar., May, Jul., Sept.
1975 — Apr., Dec.

R. Hartig
1806 Locklaine
Pasadena, TX 77502

NOT ONLY ON THE MOTORCYCLES

I am writing in reference to the motorcycle helmet article and the RAH interview (July 1983 issue) in particular. I found the RAH interview humorous and informative but offensive in its ridiculously one-sided nature. I am not a "Rider Against Helmets," but am very much against helmet laws. I find the motorcycle helmet laws to be politically oriented rather than safety oriented and in that vein am offended by them.

I have been riding and racing motorcycles for 16 years. Luckily my first street bike accident is still to come. But I ride prepared for it, properly dressed, which includes wearing a helmet. I will not ride without one. Heck, wouldn't I look stupid with all those neat decals on the side of my head!

Still, if the motorcycle helmet laws are intended to save lives why then is the relatively low number of motorcycle riders more important than the millions of automobile occupants. You have access to many accident statistics. How many automobile accident fatalities are due to head injuries? How many of those deaths might have been prevented had the occupants been wearing helmets? In fact, how many automobile fatalities could be prevented by the use of seat belts, which are already in the cars, but are not required to be used by law in any of the 50 states!

If the NHTSA is truly out to save lives, where are the helmet and seat belt laws for automobile occupants?

I'd like to close with a little advice to parents of children interested in motorcycles. Before allowing children to operate street bikes, try to provide them with lightweight dirt bikes for at least a year before their first street bikes, and insure that the dirt bike is without lights to discourage any attempt at street riding. If the child does not tire of motorcycles and still wants a street bike, the experience gained in the relatively safe off-road environment is incredibly valuable. Dr. Hurt's studies point this out very clearly.

MSgt Gordon L. Banks, USAF
Huntsville, AL 35805

FITS ME TO A T!

Your article in the August 1983 issue of DRIVER ("Dangerous Attitudes") made me wake up and see the light. When I drive my car, which is a sports car and has a low center of gravity, I drive like there is no tomorrow.

All five of those thought patterns fit me to a "T." When I am driving I feel as though I can handle any corner at least 20 miles an hour over the designated speed limit, and I get upset whenever there is someone in front of me driving like my Grandma. So far I have been lucky and haven't been stopped by the police or been in any accidents. I have had a few too many close calls, though, and because of your article I intend to tone down my driving habits.

Thank you for running informative articles in your magazine and keep up the good work. "R.A.H." (July 1983) was especially good and I am glad you ran it. Because of a helmet, my older brother is still around today. A little worse for the wear but alive. Thank you for helping me to see the light.

Anonymous

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